Multiplexing module
Vansco’s VMM 1210 off-the-shelf electronics multiplexing system features 12 programmable inputs (analog, frequency, digital) and 10 outputs rated at 10 A each, to a maximum of 80 A per module. Built to meet stringent SAE J1455 environmental standards, the system advances multiplexing technology through enhanced diagnostics and Windows-based ladder logic programming. The device can be used alone or with other Vansco multiplexing modules. The system was designed to simplify and reduce electrical system troubleshooting, maintenance, and file management time. The modules are self-programming and have status LEDs that indicate the condition of inputs, outputs, power, and network activity. The system operates on the J1939 protocol for greater connectivity to other devices.

For more information, circle 36

Engine control
The PowerView system from F.W. Murphy is a multifunction tool that enables equipment operators to view many different engine or transmission parameters and service codes. Information is displayed on its graphical backlit LCD screen, providing a window into electronic engines and transmissions. The display can show either a single parameter or a quadrant display that includes four parameters simultaneously. Diagnostic capabilities include fault codes with text translation for the most common fault conditions. The PowerView has four buttons using touch-sensitive technology that eliminates the concern of push-button wear and failure. Enhanced alarm indication uses ultra-bright alarm and shutdown LEDs (amber and red). It has an operating temperature range of -40 to +185°F (-40 to +85°C), display viewing operating temperature range of -40 to +167°F (-40 to +75°C), and environmental sealing to ±5 psi (±34 kPa).

For more information, circle 37

Heat-shrinkable tubing
Raychem-brand FL2500 heat-shrinkable tubing from Tyco Electronics is a flame-retardant, adhesive-lined polyolefin tube designed to seal and insulate electrical splices, fusible links, and other in-line electrical/electronic components. The tubing is suitable for wiring and harnessing applications in harsh environments or applications that require robust environmental sealing and flame-retardant performance. As the tube is heated to its full recovery temperature of 135°C (275°F), the polyolefin tube shrinks and the adhesive lining melts, flowing into all voids of the area being sealed. The tubing is available in four diameter sizes ranging from 7.6 to 17.8 mm (0.3 to 0.7 in) and shrink at a nominal 4:1 ratio.

For more information, circle 38

Load-sensing valve
Either with the Bosch Rexroth RC family of electronic control units or with the onboard electronic interfaces with CAN controller, the M 4 load-sensing valve brings open- and closed-loop control options to a variety of mobile applications, from small articulated truck cranes up to highly sophisticated forestry equipment. Matching the M 4 control blocks with the A10VO and A11VO series of variable axial piston pumps allows fast, effective implementation. The M 4 control blocks can also be applied to control work sequences and open-loop control of travel drives. Two sizes, M 4-12 and M 4-15, address the entire flow range typically found in mobile applications.

For more information, circle 39

Position sensor
The MH magnetostrictive position sensor from MTS Systems Corp. Sensors Div. is suitable for use inside mobile hydraulic cylinders applied to on- and off-highway machinery. Its rugged construction, reliable noncontact measurement capability, and compact sensor envelope combine to provide machine OEMs and cylinder suppliers with a viable option for position feedback in smart hydraulic...
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Circle 327
cylinders used in mobile machine automation applications. Each MH sensor is constructed of three primary components: the magnetostrictive sensing element, the sensing electronics, and a robust application housing that protects the internal components from environmental conditions. The sensor is designed for embedded application inside hydraulic cylinders with a minimal impact on the cylinder-installed envelope. The pressure housing comes in two diameters, 7 and 10 mm (0.28 and 0.39 in), with a static pressure rating of 4300 and 5000 psi (30 and 34 MPa), respectively. The measuring range is 50 to 1000 mm (2 to 39 in), with an accuracy of 0.005%.

For more information, circle 40

**Pressure sensor**

Kavlico’s Model P321 OEM diesel engine EGR differential pressure sensor was developed to help customers meet the demands of the October 1, 2002 EPA emissions standards, which require heavy-duty diesel engine manufacturers to reduce NOx emissions. The sensor comes in pressure ranges of 0-5 through 0-10 psi (0-34 through 0-69 kPa) and can withstand high common-line pressures of 100 psi (689 kPa) in a high-vibration, soot- and acid-rich environment while continuously providing precise output voltage. It measures pressure drop across an orifice and provides the control system with a proportional measurement that is used to regulate exhaust gas recirculation flow rate, which then reduces NOx formation. The device's ceramic, variable-capacitance sensing element with programmable ASIC on hybrid circuit provides extremely reliable signal conditioning.

For more information, circle 40

**Accelerometer**

Kistler’s 8795A50M5 accelerometer measures simultaneous acceleration signals in three orthogonal axes. The device is housed in a cube-shaped package with a notched corner that allows for convenient identification of the sensors' orientation when working in blind areas. The K-SHEAR design employs a quartz sensing element and operates reliably at temperatures up to 165°C (329°F). With a measuring range of ±50 g, the accelerometer has a frequency response of 1 Hz to 4 kHz and a 100 mV/g sensitivity.

For more information, circle 40

**Control system**

The APECS 5000 programmable control system from Synchro-Start is used for small spark-ignition engines that power mobile equipment. It is a fully programmable control system that has engine protection and diagnostic features. Suitable for all-terrain and utility vehicles, golf carts, turf and ground maintenance equipment, and small gen-sets, the system provides engine/ground speed control, rate of acceleration control, drive-by-wire operation, variable-speed operation, and power take-off operation. Universal speed input permits use with magnetic pickups, coil-type spark ignition systems, magneto spark ignition systems, and Hall effect sensors.

For more information, circle 43

**Signal conditioner**

Model 480B21 signal conditioner from the Electronics Division of PCB Piezotronics is an ICP sensor signal conditioner that features three-channel,
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portable operation; gain of x1, x10, and x100 for each channel; and frequency response from 0.15 Hz to 50 kHz. The unit is well suited for use with triaxial accelerometers, but will also operate with single-axis ICP accelerometers, force sensors, and pressure sensors. A fault indicator alerts of battery condition and potential sensor or input cable problems.

For more information, circle 44

Excavator control

Axiomatic Technologies Corp.’s excavator control system is a CAN open networked system to monitor and control the angle of an excavator attachment. It is comprised of two single-axis inclinometers, one dual-axis inclinometer, a multiplexor to interface with machine hydraulics, a multiplexor located on the excavator attachment, an operator display acting as the master module on the CAN open network, and other control networks available including SAE J1939. All modules are available individually or networked as complete control systems. The system’s angle sensing technology incorporates solid-state silicon-chip sensors to provide a fast response in high-vibration environments. Applications include construction equipment, vehicles, work machines, mining equipment, and military equipment.

For more information, circle 45

Control cables

LEONI Tailor-Made Cable’s LEONI L-FLEXX 690 cables are flexible, small diameter, polyurethane jacketed control cables. The cable series is designed for applications that require long-life continuous flexing, optimum oil resistance, and performance in harsh environments.

For more information, circle 46
environments. It is a good fit for tight cable tracks where the cabling is required to flex often at high speeds. The diameter-reduced cables can withstand a bending radius as small as five times the outside diameter. The optimized design, featuring extra-fine stranded copper conductors, specially formulated insulation, and low-friction woven wrap, allows for up to 18 million flex cycles. Applications include forestry equipment, aerial and scissor lifts, construction equipment, and marine and submersible equipment.

For more information, circle 46

**Miniature connectors**

**Array Connector** Corp.’s MICRO-C Series of miniature circular connectors is blind mateable, scoop proof, field serviceable, autoclavable, and has a choice of threaded or J-lock bayonet coupling mechanisms. Reverse gender capability is provided along with rugged metal shell construction; 4-, 7-, and 13-pin insert arrangements; and ground integrity in mated condition. Voltage specification is 400 V ac at sea level. Current rating is 3 A max. for #22 and #24 AWG, 2 A max. for #26 AWG, and 1.5 A max. for #28 AWG.

For more information, circle 48

**Current sensor**

The RL-7100 Series current sensors from Renco Electronics feature a molded case and are PC mountable. When used with insulated conductors through the molded apertures, they meet IEC 360 and other safety agency requirements. The sensors have four standard values in one size case. Ratios are 1000:1 with four sensing currents up to 200 A. The sensors are designed for use in applications such as switch gear/switch board, load sensing, monitoring power demand, power failure, device loss, and tracking load status.

For more information, circle 49

**Engine software**

TeleflexMorse Electronics has launched a monitoring and display package for SAE J1939-compatible diesel engine data dubbed Generic Engine Monitor (GEM). The software package runs on any CANtrak LCD display and automatically creates highly graphical instrument clusters to display key engine parameters and alarms, offering manufacturers a solution for introducing equipment with higher degrees of electronic control. GEM supports 50 diesel engine parameters and fault alarms in its standard form—including road speed, rpm, voltage, oil pressure and temperature, engine torque, and fuel level/pressure/rate—and this information is displayed graphically using menu-driven split screens. The modular software also offers the ability to manipulate data.

For more information, circle 50
Electronics

Electrical center
Cooper Bussmann’s 3200 Dual Vehicle Electrical Center (DVEC) with programmable power distribution enables complex circuit distribution, eliminating labor-intensive hard wiring from distribution box to wire harness. The DVEC features connection through external plug-in keyed connectors that easily snap in and out, and it is available in a studded input version. The center accepts standard automotive components on 8.1 mm (0.32 in) centerline spacing for distributed power applications, while its modular design accommodates larger and more complex systems. Applications include heavy-duty truck, bus, and off-highway construction equipment as well as agricultural and marine electrical systems.

For more information, circle 51

Machine guidance
Version 5.0 of Trimble’s SiteVision 3D machine guidance and control system is suited for use on dozers, scrapers, motor graders, compactors, and excavators. The system uses GPS technology and an onboard computer to continuously compute the exact tip of each blade and compare these positions to design elevation, then computes the cut or fill to grade. Features of version 5.0 include cut/fill, coverage, and terrain mapping as well as improved avoidance zones, all of which are said to offer faster job cycles, lower labor costs and machine hours, and less staking and rework. SiteVision is available in eight European languages.

For more information, circle 52

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Powertrain sensors

Wabash Technologies has developed a threaded powertrain sensor using Stanyl from DSM Engineering Plastics. The sensors offer cost savings and performance improvements over the older stainless steel design, according to the company. Enabling the plastic to be injection molded in one step as opposed to the metal version, which required machining a stainless steel near-net shape into the final component, resulted in a reduction in raw material and processing costs. Stanyl sensors retain the clamping force experienced by the sensor when the flange pushes down on the O-ring, offering an improved resistance versus the stainless steel part. Finally, the Stanyl part stays tight and does not leak the way some metal designs can. The sensors can withstand temperatures up to 160°C (320°F) as well as harsh chemicals such as ATF, engine oil, and fuels.

For more information, circle 53

Power resistors

TT electronics IRC Advanced Film Division’s D2-style (T0-263) power resistors use copper thick film to provide design engineers with improved heat dissipation in a surface mount metal-tab package. Designated the D2PAK Series, these non-inductive resistors are rated for 20 W at a 25°C (77°F) case temperature and offer resistance values to 0.020 ohms, making them suitable for a variety of surface-mount power applications where performance in a low-profile package is required. Typical applications include power supplies, industrial controls, and power-switching circuits. The D2PAK Series resistors offer tolerances to ±1% and an operating temperature range from -55 to +150°C (-67 to +302°F). Features include low thermal impedance for high power dissipation.

For more information, circle 54

Linear actuators

MAGFORCE electromechanical linear actuators from SKF Magnetic Actuators are said to enable safer positioning and adjustment of equipment and components in heavy-duty applications. Compared with pneumatic or hydraulic actuation systems, these actuators typically prove more cost-effective, safer to operate, and less susceptible to breakdown. MAGFORCE actuators can lift and lower loads on assembly lines, erect road building signs, guide brushes on street-cleaning machines, operate switches or change direction of conveyor belts, and tip bulk containers. They are available in a variety of sizes in ac, dc, and three-phase versions with stroke up to over 40 in (1000 mm), force up to 6600 lb (30 kN), and speed up to 3 in/sec (75 mm/sec). The quiet and smooth-running actuators require little space and install in any position (vertical, horizontal, or at intermediate angles). Customized components can be incorporated to meet specific performance needs.

For more information, circle 55

Brake-by-wire system

Magnetek, Inc.’s Braketronic brake-by-wire control system offers solid-state drive technology to provide variable torque control of industrial shoe and disc brakes. Single or multiple foot brakes can be proportionally controlled by foot pedal, master switch, or radio using Braketronic. The controller can also be configured to apply the brakes by pre-programmed ramping, initiated by single-step wireless or wired control devices. The units are designed to replace existing high-maintenance, power-assisted air-over-hydraulic systems to provide fail-safe emergency braking. Any voltage or frequency ac, dc, or single- or three-phase power supply can be employed to power Braketronic controllers.

For more information, circle 56
Electric actuator

THK’s electric actuator Type ELA is designed with a ground ball screw, ball splines, and angular bearings. These rolling type parts, as opposed to sliding, result in high performance efficiency, increased energy efficiency, and improved positioning repeatability. The actuator is designed with the Type LT Ball Spline, which enables it to accept each load of torque, radial and moment. The device thus carries loads without the added expense or space requirements of a rolling stopper or guide. Because the unit operates with electricity rather than with hydraulics or pneumatics, maintenance at the power source is virtually eliminated.

For more information, circle 57

Torque control

The TorqueTrak Revolution Series from Binsfeld Engineering Inc. provides continuous monitoring and control of torque and power on rotating shafts. The system also monitors shaft speed and direction. It fits any size shaft up to 20 in (508 mm) in diameter and can be installed without shaft modification or machine disassembly. The noncontact system uses inductive power and data transfer to eliminate mechanical wear surfaces resulting in long-term reliable operation and noise-free data. Other features include a 14-bit microprocessor-based design for excellent data accuracy and resolution, user-adjustable gain and offset controls stored in nonvolatile memory, and remote shunt system verification.

For more information, circle 58

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Circle 334

SAE Off-Highway Engineering August 2003
**DIN controller**
The PXR3 controller from TTI, Inc. includes two new features to meet a variety of process control needs. Options typically have included RS485 communications, digital input, timer function, dual outputs, and programmable alarms. This unit also includes 24 V ac/dc power supply and analog retransmission. A large LED display is larger and brighter than most other 1/32 DIN controllers on the market. The faceplate, designed for NEMA 4X (IP66 equivalent), is watertight and corrosion-resistant. The three-button keypad allows for programming similar to the PXR4/ PXW controller. In addition to auto-tuning and fuzzy control, the unit comes with self tuning.

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**Circuit board retainers**
IERC's ZIF (zero insertion force) circuit board retainers, coldwalls, heat frames, and SEM cages are used for high-density electronic packages. The ZIF retainer is a self-contained, precision assembly that cools densely packaged electronics by providing an effective thermal interface between the circuit board and coldwall. Features include quick 1/4 turn lock-unlocking, visual identification that the rods are in the open or closed position relative to the position of the drive assembly, uniform clamping pressure to eliminate hot spots along the PCB interface, and proven ability to withstand the rugged and adverse conditions typical in military and industrial applications.

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**Position sensor**
The QIC-Speed Sensor is a testing and logging device from CAESAR Data Systems that uses GPS technology to communicate the driving performance data of off-highway equipment. QIC calculates speed and direction continuously at 20 Hz rate by monitoring the Doppler shift of the received GPS signal as the vehicle is in motion. Speed is measured with an accuracy of 0.1 km/h (0.06 mph) and distance to within 2.5 cm (0.1 in). Features include easy installation, automatic synchronization of settings, lack of effect from foul weather and harsh conditions, and continuous computation and logging of speed, time, and coordinates during acceleration or braking.

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**Steering diode array**
The DALC112S1 from ProTek Devices is a low-capacitance and low-leakage steering diode array capable of protecting up to six high-speed data lines. It is designed for use in 10/100/1000 Base T Ethernet, telecommunications E1/E3 interfaces, USB1.1/2.0, FireWire, Video ports, and other high-speed interfaces. The unit can protect up to 6 I/O lines by diverting the transient current to power supply lines and ground, and clamping the voltages on the I/O lines. Its capacitance of less than 5 pF per line poses no threat to signal integrity while protecting the circuitry from transients. The array can be used to protect signal lines of 3-, 5-, 12-, and 15-V circuits.
Load dump sensor

**TURCK** Inc.'s load dump sensors solve application problems in large vehicles that use battery-operated systems such as lift equipment, garbage trucks, and military vehicles. These applications cause problems due to high voltage transients. The sensors have been tested and meet the SAE J1113-11 specifications. These tests were developed to provide measurable and repeatable test measurements to determine the susceptibility of electrical transients, particularly along battery feed and switched ignition, generated in those systems. The tests were established for 12- and 24-V systems. Five basic pulses are included in the tests, of which Pulse 1 and Pulse 5A are the most severe.

For more information, circle 64

Snap-action switches

GP Series snap-action switches from **Cherry Electrical Products** provide actuator travel differentials as low as 0.002 in and mechanical endurance of more than 1 million cycles. These precision switches are especially suited for heavy-duty applications. The series employs a titanium copper alloy spring and gold-over-silver contacts to provide long-life switching at a variety of loads. The maximum switching current is 15 A, 125 V ac or 250 V ac. Actuators are available in 13 different standard styles, including nickel-plated steel levers, rollers, and buttons.

For more information, circle 65
Liquid-level sensing

Gems Sensors Inc.'s Detector line of Micropower Impulse Radar (MIR) liquid-level sensors come in two series: MIR-800 Series sensors feature solid waveguide rods, while the MIR-900 Series sensors feature fully encapsulated, flexible rods. Each series offers advantages. Detector sensors are effective for measuring any liquid with a dielectric equal or greater than 3.0 and are particularly effective in media that often frustrate other measuring technologies. Foaming liquids, viscous and coating fluids, slurries, and other particulated liquid media are candidates for the MIR technology employed in the sensors. MIR-800 sensors feature solid waveguides to reach within <1 mm (0.04 in) of a tank bottom, which is especially beneficial when controlling expensive fluids. MIR-900 sensors are longer, handling tank depths to 12 ft (3.6 m), and feature a flexible dual-rod waveguide that is completely encapsulated with Tefzel. This low-dielectric material resists buildup and provides a bridge between the rods that aids in accurate wave reflection, even when they become coated.

For more information, circle 66

Battery chargers

Guest Industrial’s catalog of 35 battery chargers, battery switches, and charger-related wiring devices features several new models for each of the three main groups of chargers: long-term storage, portable, and onboard chargers. The compact, long-term storage/maintenance chargers precisely regulate replacement current to equal the battery (storage) discharge rate, so they can be left on indefinitely without danger of overcharging. They can be used on flooded or gel-cell batteries. The chargers are suitable for infrequently used, seasonal equipment such as snowmobiles, motorcycles, ATVs, personal watercraft, boats, and antique cars. The portable models have all the features of the storage models plus they are epoxy-potted, making them waterproof, shockproof, and corrosion-proof. The onboard models have the features of the portable models, but they feature two mounting flanges instead of a carrying handle, and a wider selection of output configurations.

For more information, circle 67

Conduit selection

Electri-Flex Co. application guide for liquid-tight flexible electrical conduit assists design engineers and end users in selecting the right product for their applications. This reference tool, provided in a laminated user-friendly chart, offers quick application information on the firm’s Liquatite flexible electrical conduit types including EMI/RFI, high/low temperature, and halogen-free products. The guide helps users to match the conduits with requirements such as flexibility, temperature limits, mechanical strength, low fire hazard, direct burial listing, self-extinguishing, and industry approvals.

For more information, circle 69

Torque sensor

A new 1024 optical encoder for Sensor Developments' noncontact, infrared rotary torque sensors helps to provide an accurate and cost-effective means to measure torque and angle. The sensor features a digital infrared transmission system, which provides a high immunity to noise sources such as eddy current brakes or ac motors. The sensor also features a high-level analog output to represent the torque load, and is designed as a drop-in replacement for many existing rotary transformer torque sensors.

For more information, circle 68
Cable assemblies
High-precision cable assemblies for military ground combat vehicles, airborne systems, and related equipment are custom engineered and manufactured by Aved Electronics, Inc. The units are made using MIL-Spec wire, cable, boots, transitions, tubing, contacts, terminals, connectors, backshells, and adapters. They feature hand soldering certified to MIL-S-45743, MIL-STD-1460, and MIL-STD-2000, and provide quality control that conforms to MIL-I-45208A.

For more information, circle 70

Rear-release connectors
Rear-release connectors from Amphenol Corp. incorporate the best features of its Reverse Bayonet connector and its rear-release metal clip contact retention systems to produce a version that provides easy insertion, a positive stop when inserting contacts, and accurate, secure mating upon connection. The GTC-M rear-release connectors are suitable for applications that require heavy-duty connections, including railway, mass transit, commercial, and geophysical applications. The GTC-M is a reverse bayonet style connector that incorporates hard dielectric inserts, rear insertion/release contacts, silicone grommets, and interfacial seals, as well as metal clip contact retention.

For more information, circle 71

Dual-axis accelerometer
The ADXL203 integrated Micro Electro M echanical System (iMEMS) accelerometer from Analog Devices Inc. is a high-accuracy, low-g device. By providing more than eight times the temperature stability of the closest competitor along with dual-axis sensing and integrated signal conditioning electronics on a single IC, the device addresses a range of low-g sensing applications in which performance, board space, quality, and reliability are critical. This was achieved using the iMEMS surface micromachining process. Applications include automotive stability control systems; active suspension systems; precision navigation systems; stability compensation for industrial equipment such as cranes, forklifts, and work platforms; security alarms and motion detectors; and military systems for navigation and targeting.

For more information, circle 72

Flexible conduit
Electri-Flex Co.’s Type USL Liquatite flexible electrical conduit is helically formed from hot-dipped galvanized steel for corrosion resistance. It provides enhanced mechanical protection of enclosed circuits. The product line includes more than 30 types of liquid-tight flexible electrical conduit, including high-low temperature, halogen-free/low-smoke, EMI/RFI shielding, and flame-retardant.

For more information, circle 73

Electrical splices
Raychem PolyCrimp heat-shrinkable crimp splices from Tyco Electronics are designed to join two wires in a butt splice configuration. The product incorporates a one-piece, adhesive lined polyethylene-insulating sleeve with a pre-installed, seamless crimp barrel. In addition to effective electrical insulating properties and protection from the environment, the splices also provide good strain relief. PolyCrimp heat-shrinkable crimp splices are rated for 600 V ac and have a shrink ratio of approximately 2:1. The insulation is color coded (red, blue, and yellow) to help identify the proper product. Splices are suitable for operating temperatures ranging from -55 to +125°C (-67 to +257°F) with a minimum shrink temperature of +150°C (+302°F).

For more information, circle 74
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For more information, circle 75

**Potting compounds**

Syon-brand thermally conductive potting/encapsulating compounds from Devcon are suited for sealing electrical components or wiring in applications where heat dissipation is required. The low-shrink, epoxide formulations are said to easily mix and pour, completely fill voids, and cure with minimal air entrapment. If necessary, a casting's heat tolerance can be boosted and its cure speed quickened by heating the compounds during the curing process. In addition to potting applications, Syon Tru-Cast 111 High-Density Potting and Casting Resin can be used as a structural adhesive to create heat-sink lap joints. Features of the aluminum-oxide-filled compound include improved thermal conductivity and a low coefficient of thermal expansion. A choice of three curing agents expands the resin's range of uses. Tru-Cast 111/901 has a mixed viscosity of 20,000 cps, a pot life of 30 min, and a functional cure time of 24 hours at 77°F (25°C) or 60 min at 250°F (121°C). Tru-Cast 111/924 has a mixed viscosity of 2000 cps, a pot life of 60 min, and a functional cure time of 24 hours at 77°F (25°C) or 30 min at 250°F (121°C). Tru-Cast 111/049, a heat-cured mixture, has a mixed viscosity of 11,000, a pot life of 3.5 hours, and a functional cure time of 60 min at 200°F (93°C).

For more information, circle 76

**Engine control info**

As the drive systems of construction, agricultural, and forestry machinery have been benefiting increasingly with digital electronics, Siemens VDO claims to be "the first manufacturer on the market" to offer a set of instruments that can access directly engine-control information. The VDO CAN cockpit system processes not only digital signals from two CAN bus inputs, but also analog data provided by traditional sensors on information such as tank-fill levels. The master instrument controls up to 16 additional displays and can be configured for additional functionality. As well as monitoring engine speed, the master can process an additional 25 engine signals via an integrated LCD display, all based on requirements and data protocols from "leading engine manufacturers." Data that includes temperature, pressure, or fill levels can be displayed individually using the peripherals.

For more information, circle 77

**Engine actuator**

Delphi believes that its new smart remote actuator (SRA) will help the heavy-duty, diesel-engine market meet the U.S. 2004 and 2007 emissions standards for NOx while improving fuel economy and increasing engine output. Developed from Delphi's stepper motor cruise and electronic throttle control technologies, the SRA is an integrated electronic device that combines CAN (controller area network) communication and/or pulse width modulated control interface to provide precision rotary position control with totally self-contained electronics, motor, and geartrain. The SRA is a key building block to the variable geometry turbochargers. This technology, with the proper mechanical interfaces, provides the electrical control necessary to open and close the turbine vanes, allowing the turbo to provide variable boost to adapt to speed and load conditions, in addition to altitude compensation, shorter engine warm-up cycles, and providing engine braking on descending grades. The SRA can also provide the closing, opening, and position control for butterfly exhaust valves in heavy-duty diesel applications that use exhaust gas recirculation to reduce NOx.

For more information, circle 78
Signal conditioner

Endevco Corp.’s Model 482B rack-mounted signal conditioner is an eight-channel amplifier card that communicates with Smart Isotron (IEEE P1451.4 TEDS) accelerometers, yet provides backwards compatibility for use with other integral electronic piezoelectric transducers and remote charge converters. The 482B is designed for multi-channel modal testing on large structures such as airplanes, automobiles, and heavy machinery. The unit is part of the Optimal Architecture Sensor Interface System (OASIS 2000) line, which allows the interface of multiple sensor types using the 400 Series family of signal conditioner cards, all housed in a 16-slot, 19-in rack.

For more information, circle 79

Brake booster assist

Thomas Magnete USA claims its on-off solenoid, designed and developed for brake booster assistance, meets demands for rapid brake application time, minimum volume, and easy installation on vehicles. In case of emergencies or panic braking, which is often characterized by a rapid pressing of the pedal, the on-off solenoid is activated via a control signal allowing complete braking pressure to be attained. After the brake assistance device has been released, an integrated micro-switch ensures that normal operation is resumed.

For more information, circle 80

Mini tact switches

The KM R micro-miniature tact switch series from ITT Industries, Cannon is suited for design engineers developing RF emitters and navigation systems. The units measure 4.6 x 2.8 mm (0.2 x 0.1 in) and stand 1.9 mm (0.07 in) off the printed circuit board. These four-terminal switches feature a ground terminal to protect against electromagnetic interference. Sharp, positive tactile feedback is achieved via 0.2 to 0.3 mm (0.008 to 0.01 in) travel metal domes, and actuation force can be specified as 1, 2, 3, or 4 N (0.2, 0.4, 0.7, or 0.9 lb).

For more information, circle 81

Pressure transducers

A new series of compact, high-performance pressure transducers from GE Druck enables accurate and reliable pressure measurements while operating in test stands. Modular design of the DPS 4000 series allows configurations for measurement capability ranging from oil/fuel and turbo pressures to monitoring of gearbox oil and clutch assemblies. The transducers feature a digital CAN bus serial communications interface, and temperature-corrected pressure readings are output as a digital word at up to 100 Hz in any one of 24 engineering units. Pressure ranges are available from 5 to 1000 psi (34.5 to 6900 kPa), including gauge, absolute, and differential versions.

For more information, circle 82

Diagnostic tools

The Diag3G diagnostic tool from the ACTIA Group is a rugged, 400-MHz PC-based service tool with all standard interfaces including USB, Ethernet, RS232, and PCMCIA. Compact, light, and easy to handle, it incorporates a hard disk, CD, or DVD drive, VCI, 10.4- or 12-in TFT display with touch-screen, and NiMh battery with charger. The firm’s VCI PartX is also a rugged PC-based wireless communication interface, but it is designed for end-of-line diagnostics. It supports TCP/IP protocols and a high-speed CAN bus to download software quickly and efficiently to the relevant ECU while the vehicle is manufactured.

For more information, circle 83